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FOREST PEST MANAGEMENT
Pacific Southwest Region

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EVALUATION OF FOMES ANNOSUS IN WHITE FIR WARNER MOUNTAIN RANGER DISTRICT, MODOC NATIONAL FOREST

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ABSTRACT

Some areas in predominantly white fir stands near Benton Meadows have become understocked due to past partial cutting. All stands examined had Fomes annosus infection centers in white fir. Stand openings have allowed herbaceous vegetation to increase. Abundant herbaceous vegetation has expanded pocket gopher habitat and a large population is present. Repeated intensive cultural treatments will be necessary to regenerate the sites and produce a final crop.

INTRODUCTION

Stand examinations in predominantly white fir stands in the Benton Meadows area detected scattered Fomes annosus infections. Forest Supervisor Glenn Bradley requested an evaluation to determine what impact the disease would have on future timber sales in the area, including one proposed for 1984. The area was evaluated on July 21, 1983 by Dave Schultz and James Allison of the Forest Pest Management Staff, Dave Evans, Zone Silviculturist, and John Bradford from the District.

OBSERVATIONS

The stands examined were predominantly mature white fir with scattered western white pine. There have been previous stand entries for the purpose of removing volume. Some damage occurred to residual trees during previous entries. No attempt was made to regenerate the larger stand openings that resulted from previous sales, but some areas have

pockets of advanced regeneration. Many of the openings, and areas where crown closure has been reduced, had considerable herbaceous vegetation. Pocket gophers were abundant in these areas. Some stands were fairly close to meadows, which can serve as refuges for gophers.

Many of the white fir stumps in the areas examined were hollow and contained Fomes annosus conks. These areas also had heavy accumulations of white fir logs that were culled because of Fomes annosus butt rot. In many cases, the decay columns could be traced back to old basal fire scars. There has been some scattered windthrow and mortality in the area.

DISCUSSION

The stands examined are examples of what can be expected of white fir stands which receive little or no cultural attention. Fomes annosus may become established in fir stands through a variety of ways which include logging wounds, fire scars or from infected remnants of previous stands. The effects on the stand will vary with the other stresses present. Annosus root rot will act primarily as a root and butt rot in white fir. Trees in rapidly growing stands will produce new roots and wood faster than they are decayed. As a result, there will be little mortality or windthrow, and a crop will be produced - although there will be some cull in the butts. If tree growth is slow because of competition, there will be more root decay, which will lead to windthrow and mortality; and the butt rot can cause extensive cull. Although the sites of slower-growing stands may appear to be fully occupied, there will be little net production.

MANAGEMENT ALTERNATIVES

1. Do Nothing. Old fire scars, logging scars and nearby stumps containing Fomes annosus conks indicate that many of the trees are infected with annosus root rot. Slow growth and extensive decay will result in low production of wood fiber. Windthrow and scattered mortality may result in negative net production. Some bare areas may eventually seed in from irregularly produced cone crops, but gophers and vegetation will hamper natural regeneration. White fir regeneration will eventually be infected with annosus root rot. Existing clumps of regeneration are densely stocked, which will lead to slow growth. Annosus root rot will cause some mortality and windthrow, and extensive cull in the regeneration. The site will generally be occupied, but the output will be much lower than what is assumed in the Forest plan.

2. Regenerate site with pine. Fomes annosus infections in true fir generally do not infect pines. Small amounts of western white pine and lodgepole pine were on the sites examined. Ponderosa and Jeffrey pine seed sources are available on the District. Impacts from Fomes annosus could be avoided by converting the site from fir to pine. As with fir, vegetation competition and gophers would still be a problem in efforts to regenerate with pines. Historical records and field evidence suggest that pines in the area are much more prone to porcupine damage and snow

breakage than white fir is. Activities which generate pine slash, such as thinning and harvesting, would require more restrictions on the time of cutting and method of slash disposal than similar activities in fir would, because of the possibility of pine engraver, Ips spp., buildup.

This alternative would involve trading the relatively well-known current problems for the uncertainties of attempting to grow pine on a site which has supported primarily white fir for hundreds of years.

3. Regenerate primarily with white fir. Some of the planted white fir would probably become infected by Fomes annosus. A crop can be produced with a relatively small reduction in yield by keeping the trees rapidly growing throughout the entire rotation.

Treatment for gophers would be necessary for plantation establishment. This could begin during the sale design if the blocks are laid out so they do not touch meadows or other gopher refuges and if skid trails do not provide easy paths of travel from the refuges to the new plantations. It will probably still be necessary to bait burrow systems before plantations are established, due to the high population levels. Some reduction of gopher habitat can be accomplished during site preparation.

At least one release treatment and probably a precommercial thinning would be necessary to keep the trees freely growing. If the current islands of advanced regeneration are going to be saved, they should be thinned as soon as possible. All stand entries should be designed to cause as little wounding to residual crop trees as possible to postpone the entry of decay organisms into the butts.

If the white fir regeneration is allowed to stagnate at almost any point in the rotation, Fomes annosus damage to the stand would increase.